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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :

RYUZO TOMOMATSU, ET AL. :

EXAMINER: LEE, R. A.

SERIAL NO: 09/674,498 :

FILED: NOVEMBER 13, 2000 :

GROUP ART UNIT: 1713

FOR: PROPYLENE RESIN
COMPOSITION AND INTERIOR
AUTOMOTIVE MEMBER COMPRISING
THE SAME

"RESPONSE UNDER 37 CFR 1.116-
EXPEDITED PROCEDURE EXAMINING
GROUP 1713"

REQUEST FOR RECONSIDERATION OF THE FINAL REJECTION

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicants request reconsideration of the final rejection and allowance of the application.

REMARKS/ARGUMENTS

The claims remain 1 and 3.

Reconsideration and withdrawal of the rejection of Claims 1 and 3 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,034,165 to Tomomatsu et al. are requested.

The determining issue relates to the question of whether or not the Tomomatsu et al. propylene-based resins possess an ethylene unit content within the range of 33 to 39 wt.%.

The Official Action contains the following statements in support of the rejection:

The polymer of example 1 contains a 14 wt % *p*-xylene soluble fraction and has a total ethylene content of 8 wt %. Applicants contend that the ethylene content of said *p*-xylene soluble fraction is 57 wt %, but this is assuming that the entire amount of ethylene is contained within the *p*-xylene soluble fraction. Taking the same example, it could be possible that 5 wt % of ethylene is contained in the *p*-xylene soluble fraction and 3 wt % is contained in the xylene insoluble fraction. In this case, the entire polymer still has an ethylene content of 8 wt %, and the ethylene content of the *p*-xylene soluble fraction is 5/14, or 36 wt %. In this case, the polymer would possess all requisite features of the polymer of the present invention.

Applicants respond that the calculations explained in the Official Action are based upon unrealistic hypothetical assumptions relating to the ethylene unit content of the xylene insoluble fraction. ("Ethylene content" will be used hereafter, in place of "ethylene unit content" for convenience purposes.)

It is first noted that the previous Official Action contained the following sentence, which contains a premise that Applicants consider to be a more accurate characterization of the propylene based polymer.

As the *p*-xylene insoluble fraction is not likely to be a major contributor to the total ethylene content, it can be inferred that the ethylene content of the *p*-xylene soluble fraction is likely to contain the claimed weight percentage.

Returning to the applied reference itself, Tomomatsu et al. teach in column 5, last paragraph that the propylene-based resin for the component (A) is produced by the initial polymerization (first-stage polymerization) to produce a *crystalline* propylene-base mono- or copolymer and the second stage to produce a *random* copolymer of propylene and ethylene. In the initial polymerization, propylene is copolymerized with ethylene in an amount of not larger than 2% by weight (see the description in the parenthesis in lines 61 and 62) into a crystalline copolymer. Namely, the ethylene content of the crystalline copolymer is 2% by weight at highest.

The *crystalline* copolymer contributes to the p-xylene *insoluble* fraction, and the *random* copolymer contributes to the p-xylene *soluble* fraction. Clearly, Tomomatsu et al. teach that the ethylene content of the p-xylene *insoluble* is 2% by weight at highest, this being contrary to the Examiner's assumption that 3 wt % of ethylene is contained in the p-xylene insoluble fraction, because the ethylene content ($3/86 = 3.5$ wt % for Ex. 1 and $3/91 = 3.3$ wt % for Ex. 4) would exceed the upper limit specified by Tomomatsu et al.

Taking the ethylene content of the p-xylene insoluble fraction as 2% by weight (the highest content taught by Tomomatsu et al.), the calculations were repeated to evaluate the ethylene content of the p-xylene soluble of the polymers used in Examples 1-6 of Tomomatsu et al. and displayed in Table 1. The results are shown in the following table.

	p-Xylene soluble (wt part)	p-Xylene insoluble (wt part)	Total ethylene (wt part)	Ethylene in p-xylene insoluble (wt part)	Ethylene in p-xylene soluble (wt part)	Ethylene content of p-xylene soluble (wt %)
	A	B	C	D=0.02xB	E=C-D	E/A
Examples						
1	14	86	8	1.72	6.28	44.9
2	12	88	7	1.76	5.24	43.7
3	12	88	7	1.76	5.24	43.7
4	9	91	7	1.82	5.18	57.6
5	12	88	7	1.76	5.24	43.7
6	10	90	6	1.80	4.20	42.0

As seen from the results, the ethylene content of p-xylene soluble fraction is outside the claimed range (33 to 39% by weight) for all of Examples 1-6 of Tomomatsu et al., even when the maximum amount of ethylene which contributes to the p-xylene insoluble fraction is removed from the calculations.

Thus, Applicants submit that the claimed invention cannot be anticipated by Tomomatsu et al.

The ethylene contents of p-xylene soluble fraction (42.0 to 57.6% by weight) of Tomomatsu et al. are comparable to those of the propylene-based resins used in Comparative Examples 1 and 3-5 of the present specification (see Table 1-1, page 14).

The results of Table 1-2, pp. 14 and 15, show that the impact resistance and the stiffness are ill-balanced and the weld appearance (see page 11, lines 8-14) becomes poorly balanced in relation thereto when the propylene-based resin having the ethylene content of the p-xylene soluble fraction corresponding to those taught by Tomomatsu et al. is used as the component (A) of the composition, please see the discussion on page 15, entitled "Industrial Applicability."

In the claimed invention, such drawbacks are avoided by decreasing the ethylene content of the p-xylene soluble fraction. This effect of the claimed invention would be unexpected from Tomomatsu et al., because the reference fails to teach or describe the ethylene content of the p-xylene soluble fraction within the claimed range and the resultant properties.

Favorable reconsideration is solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)



Milton Serman
Registration No. 27,499

NFO:MNS\la